

CLASS EXERCISES

By what number would you multiply the first equation in order to eliminate the variable x when the equations are added?

1. $\begin{cases} x + 3y = 10 \\ x + y = 6 \end{cases}$

2. $\begin{cases} x + 2y = -2 \\ 3x + y = 9 \end{cases}$

3. $\begin{cases} -2x + 3y = 13 \\ 8x + 7y = 5 \end{cases}$

By what numbers would you multiply the equations in order to eliminate the variable y when the two equations are added?

4. $\begin{cases} 9x + 5y = 1 \\ -2x + 3y = 8 \end{cases}$

5. $\begin{cases} -5x + 6y = 8 \\ 11x + 8y = 46 \end{cases}$

6. $\begin{cases} -4x + 3y = 12 \\ 5x - 2y = -8 \end{cases}$

Are the given linear systems of equations equivalent? Give a reason for your answer.

7. $\begin{cases} x + y = 5 \\ x - y = 1 \end{cases} \quad \begin{cases} x = 2 \\ y = 3 \end{cases}$

8. $\begin{cases} 3x - 2y = 8 \\ x + y = -1 \end{cases} \quad \begin{cases} x = 2 \\ y = -1 \end{cases}$

9. $\begin{cases} 3x + 2y = 12 \\ 6x + 5y = 27 \end{cases} \quad \begin{cases} x - 2 = 0 \\ y - 3 = 0 \end{cases}$

10. $\begin{cases} 6x + 8y = 24 \\ 3x - 5y = 30 \end{cases} \quad \begin{cases} x = \frac{20}{3} \\ y = -2 \end{cases}$

PRACTICE EXERCISES

Solve each linear system by addition. If the system is inconsistent, write *no solution*.

1. $\begin{cases} x + y = 12 \\ x - y = 2 \end{cases}$

2. $\begin{cases} x + y = 13 \\ x - y = 5 \end{cases}$

3. $\begin{cases} -x + 2y = -1 \\ x - 3y = -1 \end{cases}$

4. $\begin{cases} 3x + 4y = 9 \\ -3x - 2y = -3 \end{cases}$

5. $\begin{cases} x + 2y = 10 \\ x + y = 6 \end{cases}$

6. $\begin{cases} x + 3y = 11 \\ x + 4y = 14 \end{cases}$

7. $\begin{cases} 4x + 2y = 4 \\ 6x + 2y = 8 \end{cases}$

8. $\begin{cases} 5x + 3y = 30 \\ 3x + 3y = 18 \end{cases}$

9. $\begin{cases} x + 3y = 11 \\ 3x - y = 3 \end{cases}$

10. $\begin{cases} 3x + 2y = 9 \\ -x + 3y = 8 \end{cases}$

11. $\begin{cases} x - 3y = 1 \\ 6x - y = 6 \end{cases}$

12. $\begin{cases} x + 2y = 9 \\ 2x - y = 8 \end{cases}$

13. $\begin{cases} 3x + y = -3 \\ x + 4y = 10 \end{cases}$

14. $\begin{cases} 5x - 2y = 3 \\ 2x - y = 0 \end{cases}$

15. $\begin{cases} 4x - 6y = -26 \\ -2x + 3y = 13 \end{cases}$

16. $\begin{cases} 5x - 2y = -19 \\ 2x + 3y = 0 \end{cases}$

17. $\begin{cases} 2x - 3y = 6 \\ 6x - 9y = 9 \end{cases}$

18. $\begin{cases} 3x + 2y = 10 \\ 6x + 4y = 15 \end{cases}$

19. $\begin{cases} 2x = 8y + 24 \\ 3x + 5y = 2 \end{cases}$

20. $\begin{cases} 2x = -9y - 12 \\ 4x + 3y = 6 \end{cases}$

21. $\begin{cases} 5x - 7y = 2 \\ 3x = 4y \end{cases}$

22. $\begin{cases} 0.03x - 0.02y = 0.03 \\ 0.8x - 0.4y = 0.4 \end{cases}$

23. $\begin{cases} 0.01x + 0.02y = 0.14 \\ 0.3x + 0.4y = 1.8 \end{cases}$

24. $\begin{cases} 0.03x - 0.02y = 0.03 \\ 0.09x - 0.06y = 0.08 \end{cases}$

25. $\begin{cases} 0.04x + 0.06y = 0.12 \\ 0.16x + 0.24y = 0.36 \end{cases}$

26. $\begin{cases} 0.03x + 0.04y = 0.01 \\ 0.09x + 0.12y = 0.3 \end{cases}$

27. $\begin{cases} 1.5x - 2.3y = 3.4 \\ 0.15x - 0.23y = 0.34 \end{cases}$

28. $\begin{cases} 5x - 4y = 47 + 5y \\ 3x + 2y = 18 - 3x \end{cases}$

29. $\begin{cases} 10x + 10y = 40 - 5x \\ 9x + 2y = 32 - 6y \end{cases}$